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Plaxomicrus wangi Wang, sp. nov., a new species of longhorn beetle from Yunnan, China (Coleoptera: Cerambycidae: Lamiinae)

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Abstract: A new species of the genus *Plaxomicrus* Thomson, 1857 (Coleoptera: Cerambycidae: Lamiinae), *P. wangi* Wang, **sp. nov.**, is described and illustrated from Yunnan, China. The diagnostic characters of the new species are compared with those of its most similar congener, *P. violaceomaculatus* Pic, 1912.

Keywords: diagnosis, Astathini, morphology, new species, taxonomy

中国云南一天牛新种——王氏广翅天牛（鞘翅目：天牛科：沟胫天牛亚科）

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摘要：本文记述并图示了产自中国云南的广翅天牛属（鞘翅目：天牛科：沟胫天牛亚科）一新种——王氏广翅天牛 *P. wangi* Wang, **sp. nov.**，并且比较了该新种与其近缘种紫斑广翅天牛 *P. violaceomaculatus* Pic, 1912 的鉴别特征。

关键词：鉴别，重突天牛族，形态，新种，分类

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Introduction

Plaxomicrus Thomson, 1857 (Coleoptera: Cerambycidae: Lamiinae) is a small Oriental genus comprising only ten species (Lin & Tavakilian 2019; Lin 2020; Tavakilian & Chevillotte 2026): *P. caligatus* Holzschuh, 2018, *P. ellipticus* Thomson, 1857, *P. foliaceus* Holzschuh, 2018, *P. latus* Gahan, 1901, *P. nigriventris* Pu, 1991, *P. oberthuri* Gahan, 1901, *P. pallidicolor* Pic, 1912, *P. sikkimensis* Breuning, 1956, *P. szetschuanus* Breuning, 1956, and *P. violaceomaculatus* Pic, 1912. Breuning (1956) revised the tribe Astathini Thomson, 1864, to which this genus belongs. He (2015) restudied the six species of *Plaxomicrus* known from China in her master's thesis.

In the present study, I describe a new species of *Plaxomicrus* from Yunnan Province, China, under the name *P. wangi* Wang, **sp. nov.** Important morphological characters of the new species are illustrated, and a differential diagnosis comparing it with its closest relative, *P. violaceomaculatus* Pic, 1912, is provided.

Material and methods

Specimens were initially relaxed and softened in hot water for six hours, after which they were immersed in distilled water for cleaning and dissection. To examine the male terminalia and genitalia, the abdomens were detached using fine-tipped tweezers and subsequently cleared with a trypsin enzyme solution at room temperature for 12 hours. Thereafter, they were placed in a 70% ethanol solution to remove residual trypsin. Following examination, the dissected body parts were mounted on a slide using Euparal Mounting Medium for future studies. Digital images were acquired using either a Laowa FF 45 mm F2.8 Ultra Macro 1–5× APO or a Laowa FF 17.5 mm F1.7 Ultra Macro 5–10× APO microscopic lens on a Canon 5DsR camera, and images of the same object taken at different focal planes were merged using Zerene Stacker 1.04 stacking software. Post-processing of the images was performed with Adobe Photoshop CS6. The terminology adopted in this paper for external features of the body and genitalia follows Lawrence *et al*. (2011).

Measurement criteria in millimetres (mm) are as follows: **antennal length:** length between the base and the apex of antenna; **body length:** length between the anterior margin of head and the elytral apex along the mid-line; **elytral length:** length between the basal border and the apex of elytra along suture; **elytral maximum width:** widest part of both elytra combined; **head length:** length between the anterior margin of head and the apical margin of pronotum along the midline; **head width:** widest part of head (including eyes); **humeral width:** width across elytral humeri; **pronotal length:** length of the pronotum along the mid-line; **pronotal apical width:** width across the apical margin of pronotum; **pronotal basal width:** width across the basal margin of pronotum; **pronotal maximum width:** widest part of pronotum.

The type material of the new species is deposited in the following collections:

MYTC—the invertebrate collection of Mianyang Teachers' College, Mianyang, China;

cCBW—private collection of Cheng-Bin Wang, Mianyang, China;

cDWQ—private collection of Dong Wen, Qingdao, China.

Taxonomy

Family Cerambycidae Latreille, 1802 天牛科

Subfamily Lamiinae Latreille, 1825 沟胫天牛亚科

Tribe Astathini Thomson, 1864 重突天牛族

Genus *Plaxomicrus* Thomson, 1857 广翅天牛属

Type species: *Plaxomicrus ellipticus* Thomson, 1857.

***Plaxomicrus wangi* Wang, sp. nov. 王氏广翅天牛**

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Figs 1–4

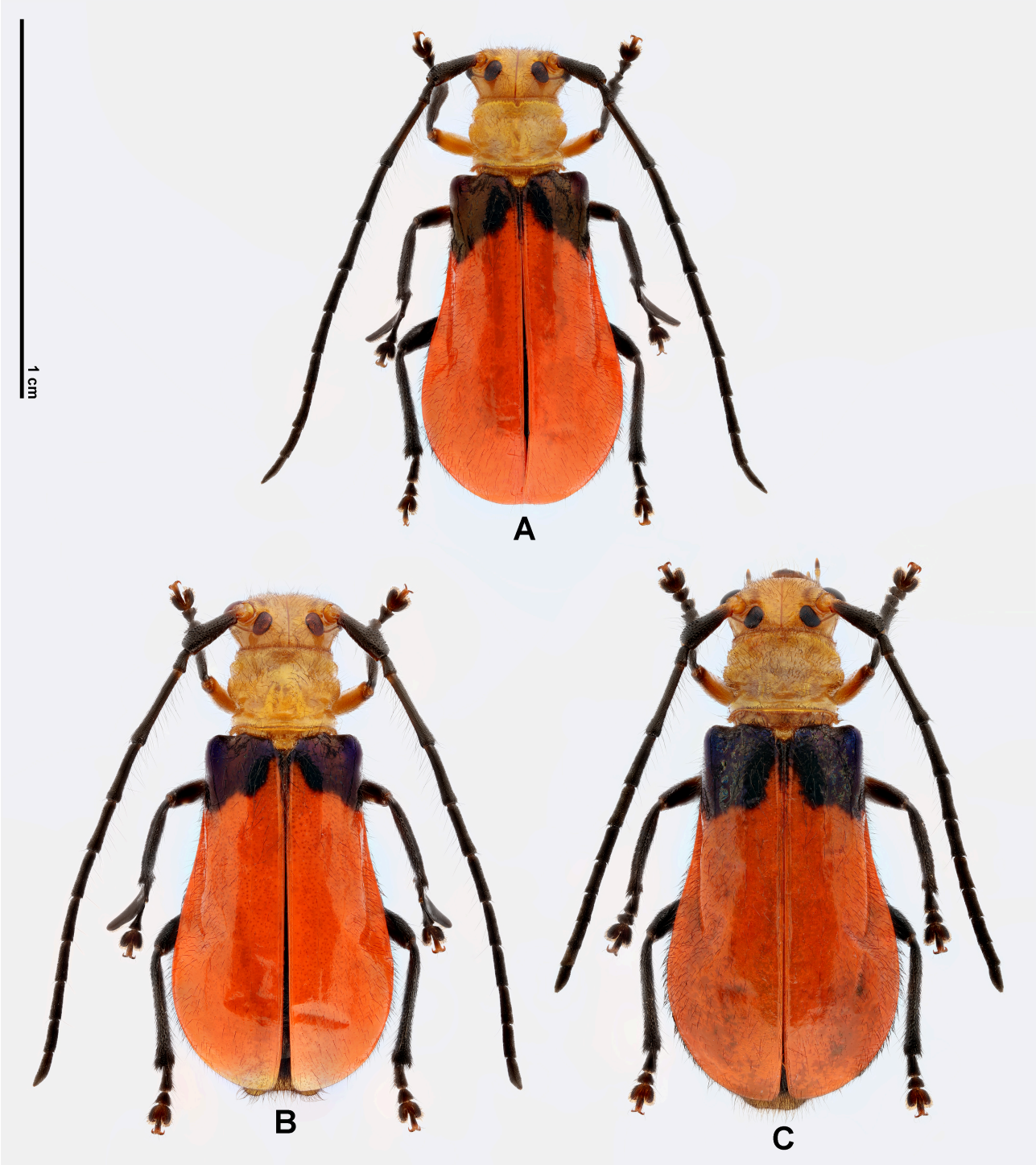

FIGURE 1. Dorsal habitus of *Plaxomicrus wangi* Wang, **sp. nov.**: **A** ♂, paratype **B** ♂, holotype **C** ♀, paratype.

Type material: 6♂♂4♀♀. **Holotype:** ♂ (MYTC) (Figs 1B; 2B), CHINA, Yunnan: Diqing Prefecture, Weixi County, Zhonglu Township [中路乡], Ahualuohe [阿花落河], 1900–2000 m, 12.VI.2026, Bai-Jun Li [李白军] leg. **Paratypes:** 1♂ (MYTC) (Figs 1A; 2A), same as holotype; 1♂1♀ (cCBW), CHINA, Yunnan: Diqing Prefecture, Weixi County, Zhonglu Township [中路乡], Guza Village [古咱村], 2300 m, 25.VI.2026, Ming Li [李明] leg.; 1♀ (cCBW), CHINA, Yunnan: Diqing Prefecture, Weixi County, Weideng Township [维登乡], Akema [阿壳马], 1900–2000 m, 16.VI.2026,

Bai-Jun Li [李白军] leg.; 1♂ (cCBW), CHINA, Yunnan: Diqing Prefecture, Weixi County, Weideng Township [维登乡], Xinhua Village [新化村], 3000 m, 20.VI.2026, local collector leg.; 1♀ (cDWQ), CHINA, Yunnan: Diqing Prefecture, Weixi County, Weideng Township [维登乡], Fuchuan Village [富川村], 10.VI.2026, local collector leg.; 1♂ (cDWQ), CHINA, Yunnan: Diqing Prefecture, Weixi County, Weideng Township [维登乡], 2200 m, 19.VI.2026, local collector leg.; 1♂ (cDWQ), same as previous except 2100 m, 24.VI.2026; 1♀ (MYTC) (Figs 1C; 2C), CHINA, Yunnan: Nujiang Prefecture, Lanping County, Zhongpai Township [中排乡], Deqing Village [德庆村], 1800 m, 20.VI.2026, Zhong-Xian Li [李中仙] leg.

Distribution. China (Yunnan).

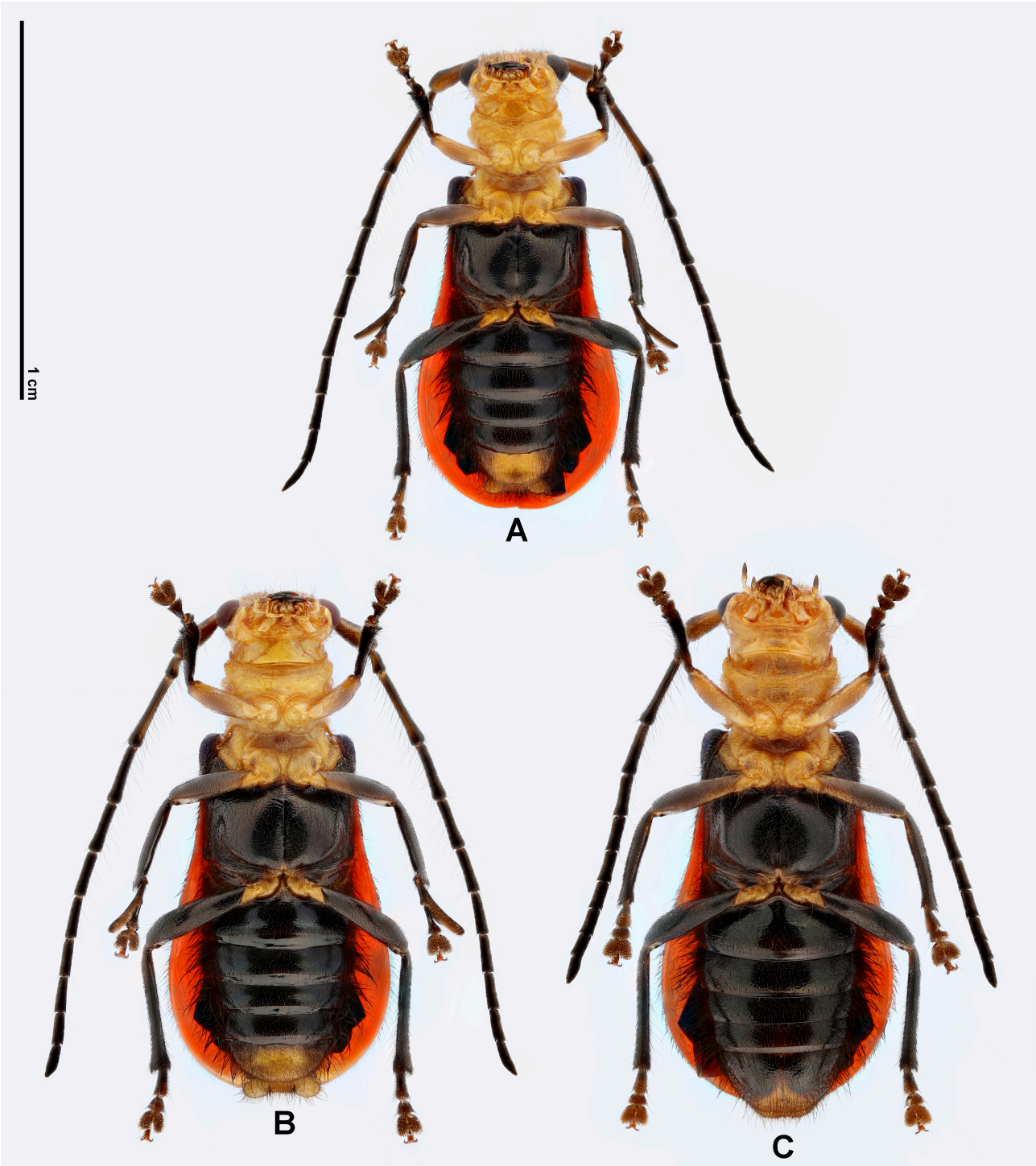

FIGURE 2. Ventral habitus of *Plaxomicrus wangi* Wang, **sp. nov.**: **A** ♂, paratype **B** ♂, holotype **C** ♀, paratype.

Etymology. The new species is dedicated to Dr. Ping Wang [王平] (Yangtze University, Jingzhou, China), in recognition of his assistance with the identification of the new species and his provision of relevant literature. Dr Wang is a young taxonomist specializing in Cerambycidae and recently celebrated his wedding. I wish him a prosperous and productive career. The name is a noun in the genitive case.

Description. Male, holotype (Figs 1B; 2B). *Measurements*. Body 13.1 mm long, widest around apical 1/3 of elytra (5.9 mm). Length of particular body parts (mm): head (1.4), antenna (14.4), pronotum (2.2), elytra (9.4); width: head (3.3), pronotal apex (2.6), pronotal base (2.8), elytral humeri (3.9).

Habitus. Body subpyriform. Head, mouthparts except apices of mandibles and labrum, peduncles of scapes, pronotum, scutellar shield, pro- and mesosterna, coxae, trochanters, profemora, and most of abdominal sternite VII yellow. Ventral surfaces of scapes, pedicels, antennomeres 3, mesofemora, and apical portions of tarsi more or less darker yellow. Elytra mainly red posteriorly; blackish, shining violet metallic lustre in about basal 2/9; apical portions somewhat yellowish. Remaining parts black. Body predominantly covered with blackish, semierect pubescence; scapes to antennomeres 7 internally bearing long blackish setae; pubescence on yellow ventral areas brownish.

Head hypognathous, widest across eyes, 2.4 times as wide as long, 1.2 times as wide as pronotal base, and 1.1 times as wide as pronotal maximum width. Surface irregularly and sparsely covered with small, shallow punctures. Frons inclined, with fine median groove extending throughout. Vertex moderately concave between developed antennal tubercles, which separated upper and lower ocular lobes; distance between antennal insertions 2.1 times as wide as upper interocular space. Upper ocular lobes oval; lower ocular lobes prominent, slightly emarginate at mesial margins, approximately as long as genae. Tempora absent. Gula subtrapezoidal, transversely and shallowly wrinkled.

Mouthparts. Labrum transversely oblong, substraight at anterior margin. Mandible short, regularly arcuate at outer edge. Maxillary and labial palpi both with ultimate palpomeres fusiform.

Antennae slender, short, 1.1 times as long as body, with antennomeres 11 and apical halves of 10 exceeding elytral apices when positioned backwards. Antennomeres with length ratio from base to tip: 3.59–1.00–3.85–2.87–2.50–2.23–2.07–1.88–1.79–1.53–1.73. Scape clavate, relatively robust, weakly thickening towards apex, rugose on external surface of apical part, reaching middle of pronotum; pedicel slightly arcuate, shortest, 1.6 times as long as wide, distinctly thinner than scape; antennomeres 3–10 gradually decreasing in length; antennomere 3 longest, 1.1 times as long as scape and 1.3 times as long as 4; antennomere 4 4/5 length of scape; antennomere 11 weakly arcuate, longer than 10.

Pronotum subcylindrical, distinctly constricted at basal 1/4, widest around middle (3.0 mm), 0.8 times as long as basal width, basal width 1.1 times apical width. Apical and basal margins both marginate. Surface irregularly and sparsely covered with small, shallow punctures; small gibbosity present at middle of each side, and large one in center of disc; transverse groove present near apical and basal margins, respectively.

Scutellar shield lingulate, truncate at apex. Surface finely punctuated.

Elytra subpyriform, broad, widest around apical 1/3, 2.4 times as long as humeral width. Humeri prominent, rounded, 1.4 times as wide as pronotal base. Lateral margins subparallel in about basal 1/5, then expanded posteriorly; apices separately subrounded. Suture marginate. Surface irregularly and sparsely covered with small, shallow punctures; each elytron with a curved crease. Wings fully developed.

Legs short. Femora slender; metafemora approximately as long as metatibiae, reaching posterior margin of abdominal sternite V. Tibiae thinner, straight. Protarsomere 1 with digitiform inner process reaching mid-length of protarsomere 2; mesotarsomere 1 with spatulate inner process reaching mid-length of protarsomere 3; metarsomere 1 slightly shorter than 2+3. Claw appendiculate, with large subround inner tooth.

Ventral side. Prosternum transversely and shallowly wrinkled; prosternal process distinctly constricted intercoxally, then expanded posteriorly and slightly emarginate at posterior margin; procoxal cavities closed.

Mesosternal process apically excavated. Metasternum with short, subtriangular metasternal process, and with median sulcus extending throughout.

Abdomen. Abdominal sternites densely and finely punctate. Abdominal tergite VII (Fig. 3A) subhexagonal, inconspicuously emarginate at posterior margin; sternite VII (Fig. 3B) subtrapezoidal, shorter than V+VI, rounded at posterior margin. Tergite VIII (Figs 4A–C) deeply and roundly excised at median of posterior margin; sternite VIII (Figs 4A–C) shallowly and widely emarginate at posterior margin; spiculum relictum (Fig. 4A) short, about 3/4 length of apical area. Spiculum gastrale (Figs 4A, B) with branches about 2.2 times as long as stem; stem strongly bent dorsally in apical part in lateral view (Fig. 4C).

Male genitalia. Tegmen (Figs 4D, E) slender, widest at about apical 3/8, gently curved dorsally in lateral view (Fig. 4F); ringed part slender; parameres mastoid, rather short, about 1/9 length of tegmen, with some strong setae on apical and subapical parts of dorsal surface and much shorter ones on ventral surface. Median lobe (Figs 4G, H) about 1.4 times as long as tegmen, gently curved dorsally in lateral view (Fig. 4I); ventral plate obliquely truncate at apex; dorsal plate much longer than ventral plate, acuminate at apex; basal struts about 1/4 length of median lobe.

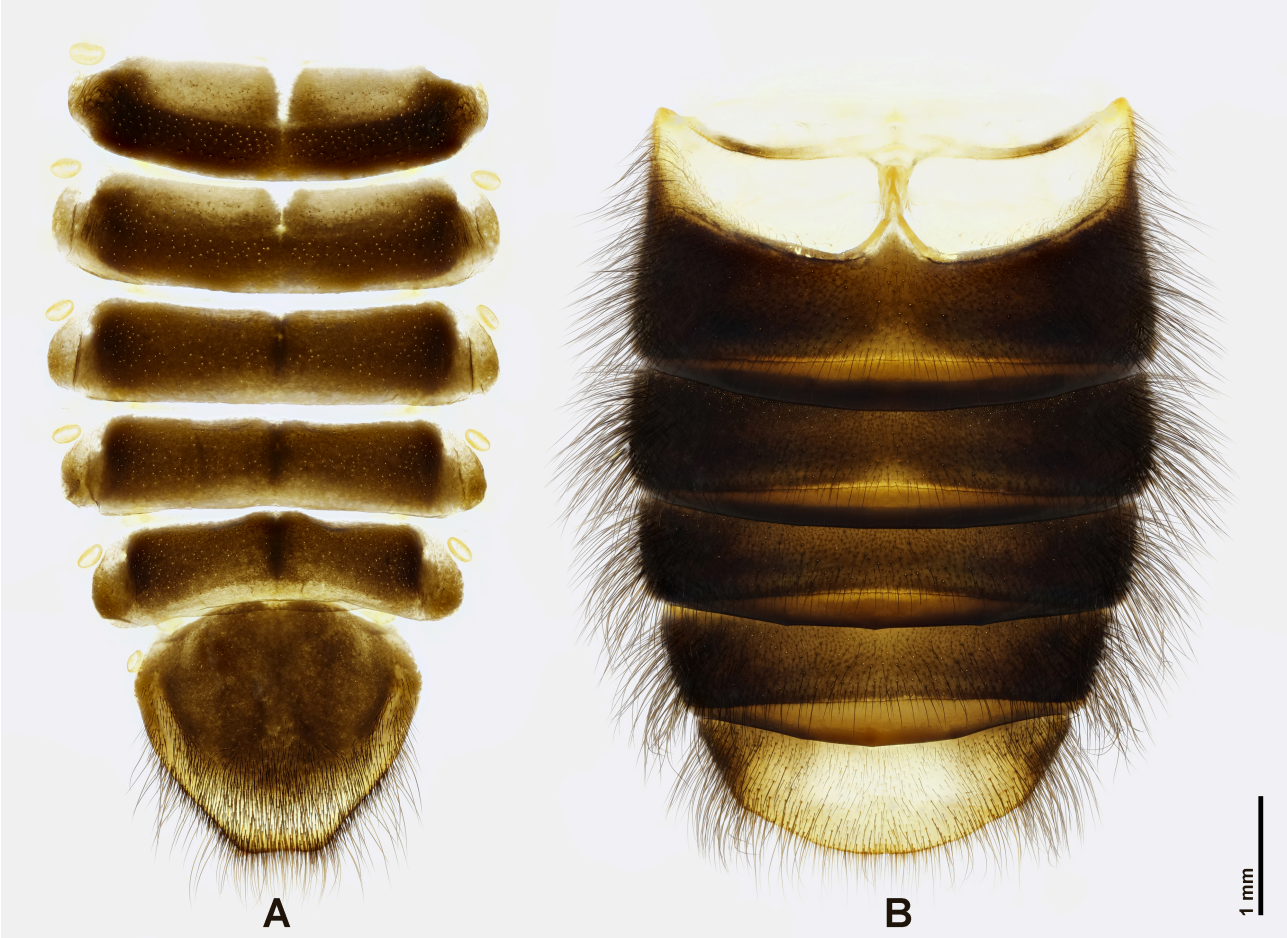

FIGURE 3. Male abdomen of *Plaxomicrus wangi* Wang, **sp. nov.**, holotype: **A** abdominal tergites II–VII **C** sternites III–VII.

Male, paratype (Figs 1A; 2A). Body 12.0 mm long, widest around apical 1/3 of elytra (5.3 mm). Length of particular body parts (mm): head (1.3), antenna (13.2), pronotum (1.9), elytra (8.7); width: head (2.9), pronotal apex (2.2), pronotal base (2.5), elytral humeri (3.5). Antennomeres with length ratio from base to tip: 2.56–1.00–3.34–2.67–2.32–2.03–1.92–1.80–1.67–1.45–1.59.

The paratype is consistent with the holotype except in the apical portions of the elytra, which are not yellowish but uniformly red.

FIGURE 4. Male terminalia and genitalia of *Plaxomicrus wangi* Wang, **sp. nov.**, holotype: **A–C** abdominal segment VIII **D–F** tegmen **G–I** median lobe.

Female, paratype (Figs 1C; 2C). Body 13.8 mm long, widest around apical 1/3 of elytra (6.1 mm). Length of particular body parts (mm): head (1.4), antenna (11.7), pronotum (2.2), elytra (9.9); width: head (3.4), pronotal apex (2.8), pronotal base (2.9), elytral humeri (4.0). Antennomeres with length ratio from base to tip: 3.88–1.00–4.06–2.93–2.36–2.00–1.82–1.57–1.44–1.13–1.49.

Similar to male in general appearance, but distinct by the following characters: lower ocular lobes slightly shorter than genae; antennae much shorter, about 0.8 times as long as body, with apices reaching apical 1/7 of elytra when positioned backwards; protarsomere 1 without digitiform inner process; mesotarsomere 1 without spatulate inner process; abdominal sternite VII with smaller, spiny crescent-shaped yellow area yellow area, and longer than V+VI.

Differential diagnosis. This new species is characterized by a distinctive and remarkable colour pattern and most closely resembles *P. violaceomaculatus* Pic, 1912. It can be distinguished from the latter by the following combination of characters (characters of *P. violaceomaculatus* in parentheses): dorsal surfaces of antennae almost entirely black (yellow); elytra mainly red posteriorly (yellow posteriorly), with black basal portion smaller (broader); tibiae and tarsi almost entirely black (predominantly yellow, with merely the external surfaces of metatibiae somewhat black); ventral surface of abdomen, except sternite VII, almost entirely black (widely yellow along mid-line).

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Additional information

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Photo Gallery

柳角胸天牛 *Rhopaloscelis unifasciatus* Blessig, 1873
Shuangli Village [双鲤村], Xinyang Town [新阳镇], Youxi [尤溪], Fujian
photograph by Guang-Lin XIE [谢广林]